United States Department of the Interior, J. A. Krug, Secretary
Fish and Wildlife Service, Albert M. Day, Director

Fishery Leaflet 125

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HOW TO MAKE AND MEND FISH NETS 1/

The needle should be filled until the twine is approximately 1/4" from the end of the spine, leaving a 2' free end of twine. Make a bowline in the free end, having the length of the loop when stretched so that the sides come together the same as the distance desired between diagonally opposite knots of a stretched mesh.

The next step is to weave a "chain" of even meshes. The body of the net is then made by weaving onto the side of the chain. To make the chain, hook the loop just formed over a cup hook or tie it up with a loop of twine. Turn the loop so that the knot is in the middle of the left-hand side. Pass the filled needle up through the loop with the right hand and pull it down towards the right hip. Hook the left little finger in the new loop from behind. (See figure 2.) Adjust the new loop to the same size as the first one by pulling with the needle or with the finger, and stretching the loops and twine firmly.

Next grasp the twine where it passes through the first loop with the left thumb and forefinger as shown in figure 3. The thumb is behind the twine leading to the needle and the thumbnail grips the bottom of the old loop. Now throw a loop of twine up to the left front as shown in figure 3, with the running end leading from the top of the loop. Pass the point of the needle behind the two sides of the first loop, in front of the twine leading down from the original bowline to the left little finger, and through the loop just thrown up to the left front. (see figure 3.)

To complete the mesh, shown in figure 4, regrasp the point end of the needle with the right hand and pull the knot tight by pulling the needle smartly down towards the right hip, holding work taut with left hand.

Remove the first loop from the nail, turn it over and replace it so that the twine again leads from the middle of the lefthand side of the loop as shown in figure 5.

After the first few meshes have been woven the chain can be twisted until the twine leads off from the left side, a mesh woven, and a chain twisted back to weave the next mesh, without removing work from hook.

At least 17-17½" of chain per foot of length side should be allowed. The chain should always end with an even number of meshes.

1/ Reprinted from Atlantic Fisherman, Feb. 1945.
Note: This leaflet supersedes Sp. 1651-B, issued by the former Bureau of Fisheries.

When the chain is finished it is spread out, as in figure 6. The needle indicates the first mesh that will be used in weaving back and forth across the net. The opposite row of meshes form the edge of the net. These edge meshes may be strung on a rod or rope or, if the net is small, gathered together on a nail. If the net is hung so that the loops are free to slide together when one pulls at right angles to the bar it is much easier to judge the correct size of loop. The meshes will begin to close up anyway after five or six rows have been woven. The hanging bar should be thrust through as shown in figure 7, so that all twine crosses the front of the bar in the same direction.

With the chain hung up as described in figure 7, the twine should lead off from the lower left hand knot. Pass the needle up through the mesh to the right of the knot. Hook the left little finger in the loop as shown in figure 7. Adjust the length of the loop so that the distance from the knot directly above the little finger to the bottom of the loop equals the total length of the mesh. Complete the tie just as was done in making the chain.

Pick up the next loop to the right, tie into it and proceed across to the right hand edge of the net. If the chain contained an odd total number of meshes the last mesh on the right will be strung on the rod (see dotted lines in figure 6) and must be skipped in weaving the body of the net.

*Now change the needle to the left hand, pass the point up and to the front through the last mesh woven, hook the little finger of the right hand in the loop and adjust to length as shown in figure 8.

*Throw a loop of twine up to the right front, pass the needle from left to right behind the mesh being tied into, in front of the loop hooked on the finger, and through the loop thrown up to the right as shown in figure 9.

*Pull the knot tight as shown in figure 10 and continue weaving from right to left in the same manner until the left hand edge of the net is reached.

*Change the needle back to the right hand and work back from left to right as in the first row of the body. Continue weaving back and forth until the desired length is reached. This length is determined in exactly the same manner as the length of the chain, by counting mesh if for a patch, or by measurement if for a complete new set.

Note that the ties must be made as described so that the twine will lead directly from one knot to the next without crossing the twine coming into the knot. If trouble is experienced with the twine crossing itself when the ties are made as described, it indicates that the knots are not being pulled tightly into the proper shape. Probably the little finger is not holding the loop tightly enough as the knot is pulled tight.

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*Alternate instructions for the directions of the four paragraphs marked with an asterisk and for Figures 8, 9, and 10 are given on pages 4 and 7.

Mending Nets

The first step in mending a tear is to cut off unnecessary tag ends, then cut out enough more strands to satisfy the following requirements. (Figure 11 shows the most convenient method of cutting twine.) 1. The end of the twine must start at a knot joining three strands or from a tag end leading from such a knot. The weaving must also end at a similar point. This is necessary because only one end of the mending twine is attached at the knots and there must be three unbroken strands of the original net to give the required four strands radiating from each knot. 2. The knots around the edges of the tear must have two unbroken strands of the original net. Figures 12, 13 and 14 show different typical tears before and after trimming, and the sequence in which the tears are woven.

If the mending starts at a knot where three strands join, the end of the twine should be tied on as shown in figures 15, 16 and 17.

The end of the twine is placed between two of the strands, and the first hitch is made around these two strands. The second hitch is made around the middle strand only, in order to bind the end of the twine more securely without excessively distorting the shape of the mesh. If the mending starts at a tag end, the end of the twine is tied to the tag end with a square knot.

Similar ties are used in finishing the repair. The sequence of weaving depends upon the shape and position of the tear with respect to the weave of the net and must be determined for each job. (See figure 14.) For beginners the most convenient method for finding the proper sequence and weaving the tear is to spread the net out flat so that the meshes are square and thread the twine through the meshes (without tieing it at the knots) until the proper sequence is found by trial. The twine may then be cut and left in the net to guide the weaving. The guiding twine is removed after the repair is finished.

In adjusting a loop, care must be taken to note whether the loop forms one or two sides of a mesh and to adjust the size accordingly.

Use either the right-hand or the left-hand method of tieing the knots, depending upon whether the twine goes from left to right or right to left when the repair meshes are nearest the weaver.

On some complicated tears it is impossible to trim the tear so that it may be woven in a continuous sequence, without cutting out an excessive amount of net. In such cases, it is better to trim less extensively and weave several sequences.

Patching

When a net contains a large hole it is best to insert a patch cut from a scrap net or to weave a patch separately and then insert it in the hole.

First, lay the net out and pull the meshes square. Then cut the hole out to a roughly rectangular shape surrounded by knots joining two strands. (See figure 18.) Notice that a "three-strand knot" is not used for starting or finishing the insertion of the patch. This is because the weaving starts and finishes at the

same knot when inserting a patch rather than at different knots as in mending a tear. A rectangular patch is now cut or woven with one less "two-strand knot" on each side than on the corresponding side of the hole. (See figure 19.) The patch is inserted in the net by weaving continuously around as shown in figure 20.

Editorial Note: The procedure of knitting meshes from right to left is often also done without shifting the needle to the left hand. Anyone who finds it easier to hold the needle in the right hand when weaving in either direction may be guided by the Alternate Figures 8A, 8B, 9, and 10 and by the accompanying instructions, instead of by Figures 8, 9, and 10 of the original article and the four paragraphs marked with asterisks.

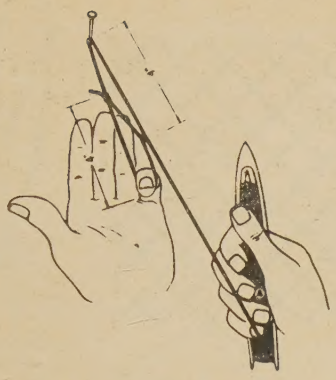
To weave the second row from right to left without transferring the needle to the left hand use the following directions:

Catch the twine under a finger of the left hand, as shown in Alternate Figure 8A, thus forming and measuring the mesh. The needle, held in the right hand, is passed down and back through the last mesh that was made going left to right. The needle is pulled through and the twine tightened as shown in Alternate Figure 8B. Then the junction of the twine where the knot is to be tied is held firmly between the thumb and forefinger of the right hand.

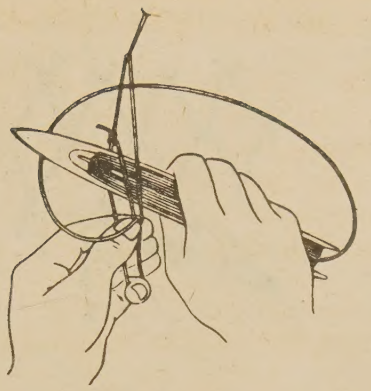
Now drop sufficient slack from the needle to leave a large loop when the needle is returned to the right in accordance with Alternate Figure 9. Then the needle is passed to the left behind the twine being held between the thumb and forefinger of the left hand and on through the loop of slack twine that had previously been dropped.

Now draw the knot tight with the notched end of the needle as shown in Figure 10, and proceed to the next mesh to the left. Keep on in the same manner until the left hand edge of the net is reached, and then start weaving toward the right again in accordance with the instructions previously given with Figure 7. Continue weaving back and forth until the desired length is reached. This length is determined in exactly the same manner as the length of the chain, by counting mesh if for a patch, or by measurement if for a complete new net.

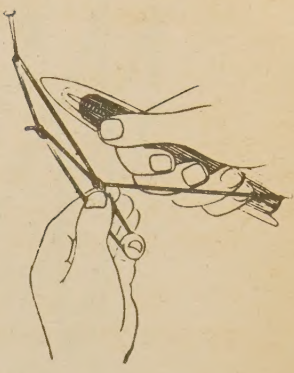
Figure 1—Threading.



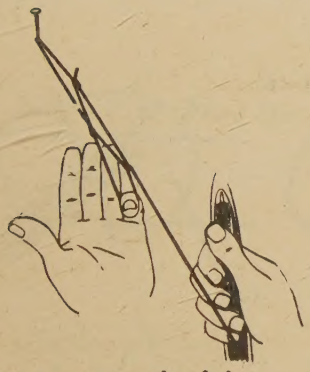
(2) Adjusting size of loop.



(3) Making the knot.

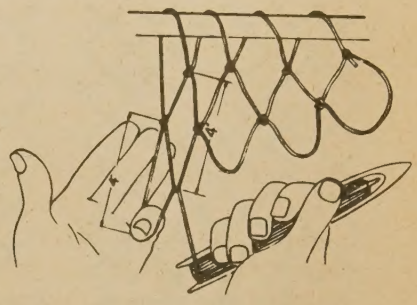


(4) The completed knot.

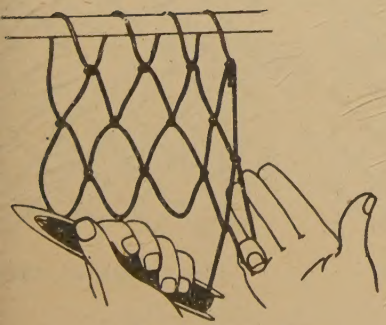


(5) Continuing the chain.

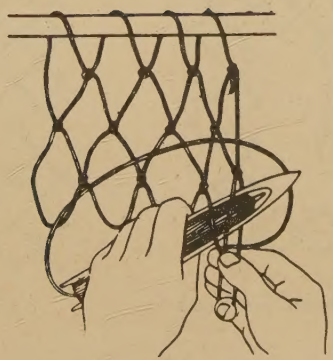
(6) The completed chain.



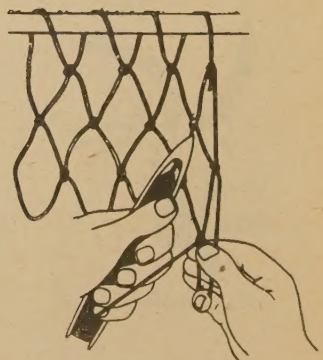
(7) Starting body of net.



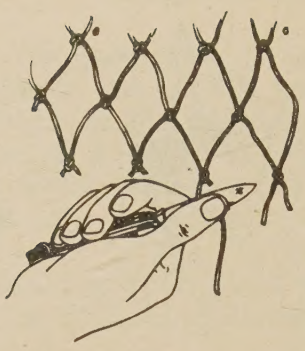
(8) Starting second row.



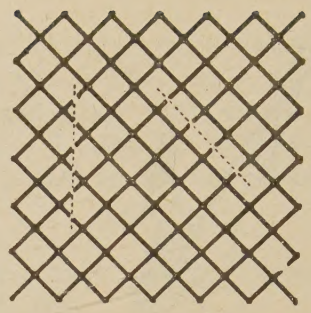
(9) Right to left tie.



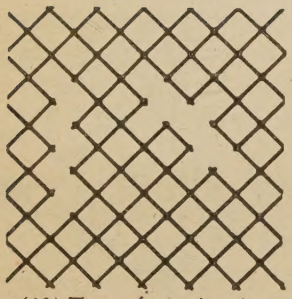
(10) Completed tie.



(11) Cutting twine.

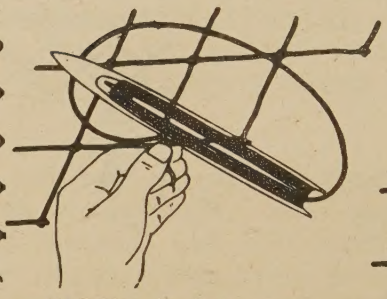


(12) Tear before trimming.



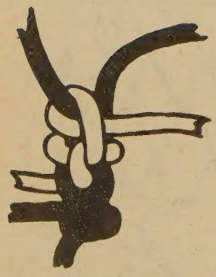
(13) Tear after trimming.

(14) Sequence of mending.

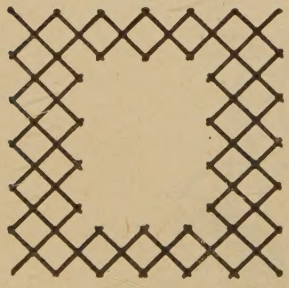


(15) First hitch in repair.

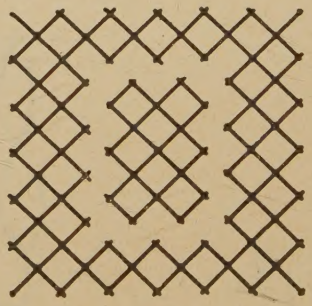
(16) Second hitch.



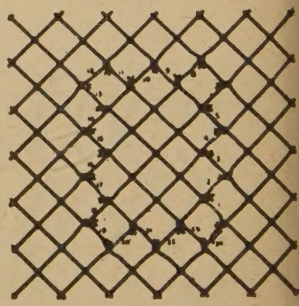
(17) Completed hitch.



(18) Hole trimmed for patch.



(19) Placing patch.



(20) Completed repair.

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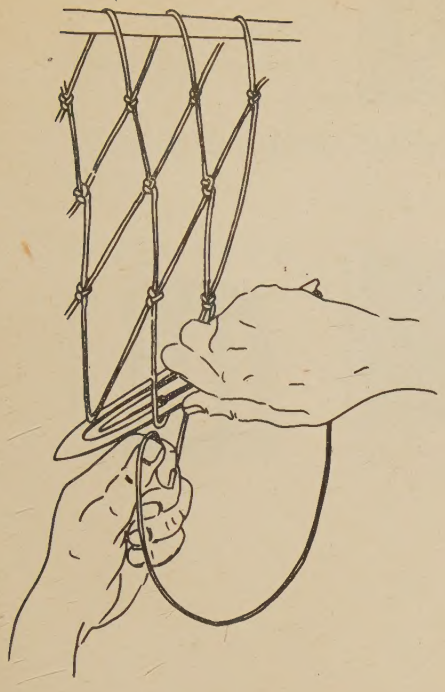
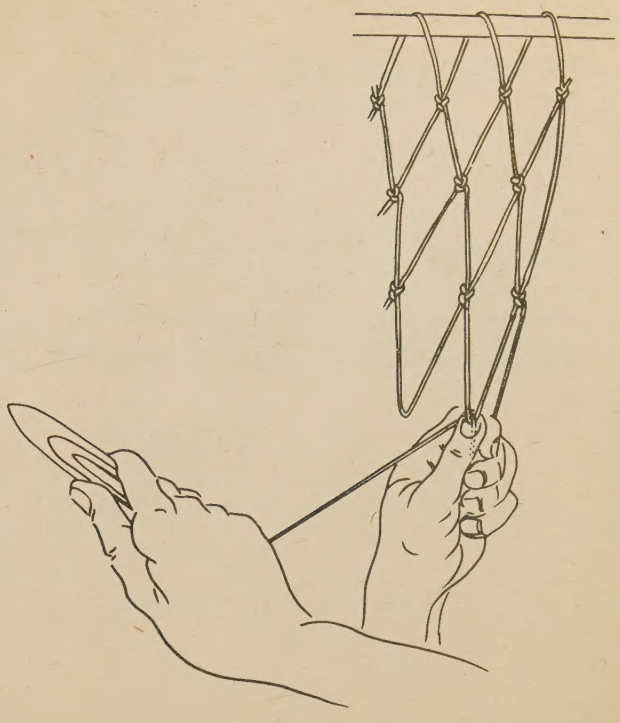
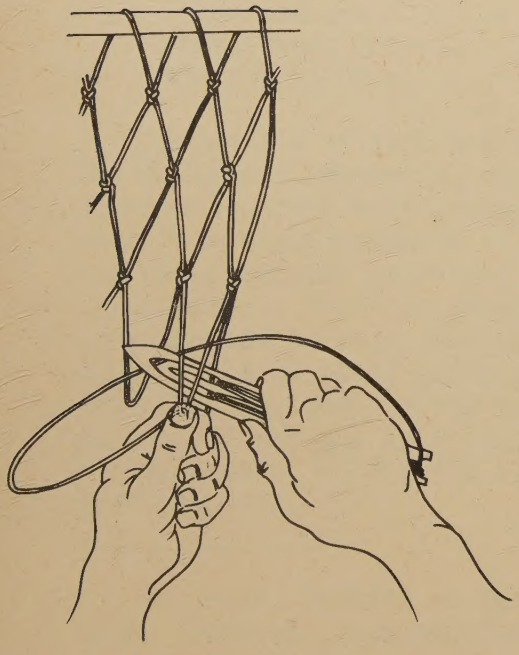


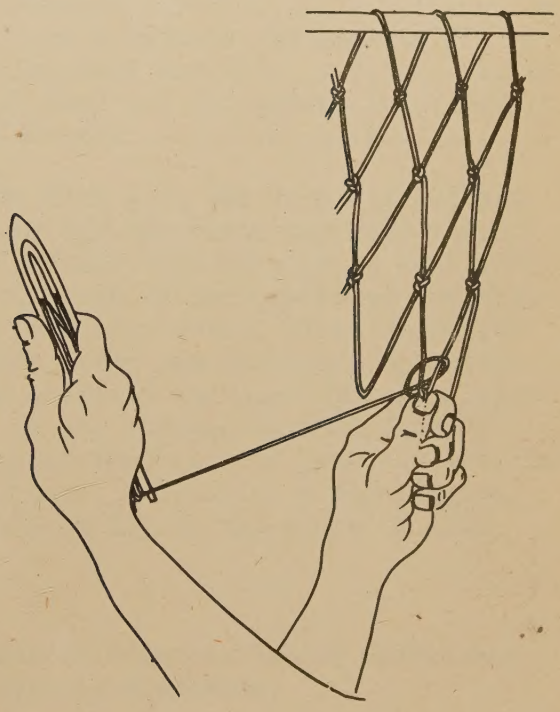
Alternate Fig. 8A



Alternate Fig. 8B



Alternate Fig. 9



Alternate Fig. 10